

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
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)	
Amendment of Part 2 of the Commission's Rules)	ET Docket No. 00-258
To Allocate Spectrum Below 3 GHz for Mobile)	
And Fixed Services to Support the Introduction of)	
New Advanced Wireless Services, Including Third)	
Generation Wireless Systems)	
 Amendment of Section 2 of the Commission's)	ET Docket No. 95-18
Rules to Allocate Spectrum at 2 GHz for Use)	
By the Mobile-Satellite Service)	
 The Establishment of Policies and Service Rules)	IB Docket No. 99-81
For the Mobile-Satellite Service in the 2 GHz Band)	
 Petition for Rule Making of the Wireless)	RM-9498
Information Networks Forum Concerning the)	
Unlicensed Personal Communications Service)	
 Petition for Rule Making of UTStarcom, Inc.)	RM-10024
Concerning the Unlicensed Personal)	
Communications Service)	

COMMENTS OF LOCKHEED MARTIN CORPORATION

Lockheed Martin Corporation ("LMC") hereby submits the following comments in the above-captioned proceedings. In its Memorandum Opinion and Order and Further Notice of Proposed Rule Making, the Commission proposes several options for providing spectrum for advanced wireless services, including third-generation wireless services ("3G"). LMC is one of the world's leading systems integration companies and so has compelling reasons to advocate the timely development and deployment of advanced wireless services. However, identifying spectrum for these services should not come at the expense of other nascent telecommunications services, such as the recently licensed Mobile-Satellite Service ("MSS") operations in the 2 GHz

band. Rather, the Commission should continue working the on-going inter-agency process with the National Telecommunication and Information Administration (“NTIA”), and other interested parties, in a coordinated effort to explore other frequency bands where advanced wireless services could be accommodated.¹

Discussion

LMC is a leading systems integration company that has significant interest in successful 3G system development and deployment. LMC develops products that can be used to integrate wireless users to terrestrial networks, providing consumers with access to corporate telecommunications facilities and the Internet. LMC expects there will be a substantial market for complementary or ancillary products when 3G becomes a reality.

For example, Lockheed Martin Global Telecommunications, a wholly-owned subsidiary of LMC, has developed a new wireless solution that allows corporate enterprises and Internet service providers to interface with a variety of wireless platforms. This product allows Internet access from handheld devices and corporate entities to provide virtual private network access to their employees, enabling access to e-mail accounts, access to corporate intranets, and use of Internet travel applications. This solution is not carrier, device, or frequency band dependent and, thus, can operate with any wireless communications device in any range of frequency bands.

LMC, therefore, supports deployment of 3G services as rapidly as demand requires. However, the products being developed by LMC do not rely on the use of any particular band nor upon a globally harmonized band. In fact, LMC views harmonization as but one aspect of system or network interoperability. In the domestic efforts towards identification of 3G spectrum, LMC believes that the emphasis on the need for global harmonization of domestic 3G spectrum has been misplaced as discussed below. This has unnecessarily restricted the exploration of possible options for domestic spectrum allocations for 3G.

¹ See *NTIA Press Release*, “NTIA Statement Regarding New Plan To Identify Spectrum for Advanced Wireless Mobile Services (3G),” released October 5, 2001.

Identification of 3G Spectrum:

Finding suitable spectrum below 3 GHz presents enormous technical and regulatory challenges. LMC is aware the Government has been exploring many alternatives to accommodate 3G services. However, on the specific questions the Commission has raised with respect to the possible benefits of global or regional spectrum harmonization, LMC believes the current focus of the wireless industry on achieving global “harmonization” of 3G spectrum is somewhat misleading; global harmonization of 3G spectrum does not currently exist and any decision the U.S. makes will not significantly alter the current situation.

The wireless industry has argued that allocating spectrum in the 1710-1850 MHz band would enable harmonization with European 3G spectrum. In fact, systems operating in the 1710-1880 MHz band² (sometimes referred to as the “GSM 1800” band) are currently licensed in Europe for 2G services (GSM) and not 3G; moreover, GSM is a TDMA-based architecture while the European-wide standard for 3G is a CDMA-based architecture (wideband-CDMA or WCDMA). This results in incompatible European standards for 2G and 3G, and means that single handsets serving 3G and GSM networks must be capable of multi-mode, multi-band operation.

While it is certainly possible in the long term that 2G spectrum could be made available for 3G services in Europe, this is by no means certain. In fact, it is arguable whether, given the significant infrastructure investment and license expenditures that European wireless service providers have assumed, 3G will need more than the current allocation.³ If more than the current 3G spectrum allocation is needed, Europe, at the International Telecommunication Union (“ITU”) 2000 World Radiocommunications Conference (“WRC-2000”), identified the 2500-

² ERC Decision ERC/DEC/(98)21 notes that DCS-1800 (also known as GSM-1800) terminals operate in the bands 1710-1785 and 1805-1880 MHz.

³ ERC Decision ERC/DEC/(00)01 allocated the bands 1900-1980, 2010-2025, and 2110-2170 MHz to the terrestrial component of the Universal Mobile Telecommunications System (UMTS), the European version of 3G.

2690 MHz band as the preferred expansion band for 3G⁴, *rather than forcible migration of GSM-1800 to 3G*.

The European GSM system is a very widely deployed mobile service, and planning and implementation of upgrades to this service are already underway, including overlays to existing GSM networks such as the General Packet Radio Service (“GPRS”) and Enhanced Data Rate for GSM Evolution (“EDGE”), sometimes referred to as 2.5G. These upgrades promise higher speeds and data throughput than current generation GSM systems can deliver. Given the heavy debt burden incurred by European service providers in the 3G spectrum auctions and the ongoing GSM technology upgrades, 3G networks may be implemented more slowly than previously anticipated, mooted any near term needs for additional spectrum beyond the current 3G allocation and its WRC-2000 expansions bands. Thus, any merging of 3G and GSM networks and spectrum in Europe, if it happens at all, will likely not occur until well into the future.

While the alignment of spectrum and use of a single standard would be the ideal of any wireless manufacturer and service provider, it is more realistic to focus on the development of some degree of interoperability among terrestrial mobile services. This is borne out by the fact that European and U.S. manufacturers already offer mobile phones that are compatible with multiple technical standards and which operate in several frequency bands. The lack of a globally harmonized spectrum for current generation cellular has not precluded a vibrant international roaming marketplace. In the U.S., there are a number of service providers that offer phones that use the European GSM standard, but which operate in the 1900 MHz Personal Communications Service bands. Likewise, handset manufacturers currently build handsets that use the GSM standard, but which operate in both the GSM-1800 and GSM-900 bands. Once 3G is implemented in Europe, handset manufacturers, either as a result of regulatory requirements for nationwide roaming and requisite backwards compatibility with GSM or as a result of the practical need to leverage an existing GSM customer base, are planning on building multi-mode, multi-band handsets capable of operating with GSM and WCDMA standards and using at least three frequency bands (GSM 900, GSM-1800, and 3G).⁵ The incremental cost of adding an

⁴ See Resolution 223 (WRC-2000).

⁵ See ITU Report: “From GSM to IMT-2000-A Comparative Analysis.”

additional band, beyond the three in which many European operators will be required to operate anyway, would not appear to be significant.⁶

Because multi-band, multi-mode handsets are already in use in current wireless networks and will become even more commonplace with implementation of 3G systems, LMC believes that restraining consideration of the range of frequency band options for domestic 3G in the pursuit of global harmonization unnecessarily hinders identification of spectrum for 3G.

MSS 2 GHz Band Proposals:

In this proceeding, the Commission has proposed reallocation of some portion of the 2 GHz band in which currently licensed MSS systems are planning to operate. This proposal stems from a Petition for Rule Making filed by the Cellular Telecommunications and Internet Association (“CTIA”), which has been the dominant wireless industry voice in seeking spectrum for 3G services. LMC opposes any reallocation of this MSS spectrum for 3G services. Despite the well-known problems that have beset the U.S.-licensed MSS industry in recent years, the MSS industry remains vibrant and continues to offer a wide range of services in the US and overseas. Mobile satellite systems offer a variety of voice and data services, both circuit-switched and packet-switched, and are used routinely for business operations as well as in emergencies on land, at sea and in the air. The Commission should avoid taking action, such as proposed by CTIA, that would impose a cloud of regulatory uncertainty over the newly licensed MSS systems at 2GHz – which can only adversely affect the health of the U.S. MSS industry.

The importance of maintaining a viable U.S. MSS industry cannot be overstated. MSS systems generally are often the first emergency communications services re-established when disaster occurs. While terrestrial services also serve important emergency communications functions, the terrestrial infrastructure they depend upon is, unlike satellite-based services, subject to disruption. Moreover, there is wide agreement that satellite-based solutions are one of

⁶ Motorola, for example, signed a contract with Hutchison Whampoa in July of this year to jointly produce wireless phones that will operate in multiple bands and use GSM, GPRS, and WCDMA standards (See article titled “Hutchison Whampoa, Motorola Sign US\$700m Contract”, asia.internet.com, July 10, 2001). Similarly, an ITU-report titled “3G Mobile Policy: The Case Study of Sweden” makes reference to an August 2001 announcement

the most promising means to deliver advanced telecommunications services to rural areas. These areas often are the last to be developed by terrestrial service providers since the return on infrastructure build out may not justify the expense. Thus, maintaining a viable and vibrant US MSS industry should be a priority for the Commission.

Conclusion:

For the reasons stated above, LMC urges the Commission to continue the inter-agency process now underway to examine additional spectrum alternatives for provision of 3G services in the United States. While supporting deployment of advanced wireless services, LMC does not agree that the exploration of options for domestic 3G spectrum should be artificially constrained by global “harmonization” goals and furthermore, it opposes reallocation of already assigned MSS spectrum.

Respectfully submitted,

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from NEC that as of August 2001, they will begin delivering 3G handsets that are compatible with 2, 2.5, and 3G systems. (See Section 2.5, p. 27).